

CS-195+ Composite Sheet FR Board

*Durable, Steel-lined Fire-Rated Board for up to 4 hours fire protection
Tested to AS1530.4, EN1366 and UL Listed*



Technical Data Sheet

a **3M** product

Light. Strong. Durable.

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KEY BENEFITS

- Intumescent, elastomeric sheet gives superior fire protection
- 30 gauge gal steel face gives strength and durability
- Protects around HVAC ducts and penetrating services
- Excellent fire-break for both vertical and horizontal penetrations
- Approved to AS1530.4, EN1366 and UL Listed
- See MORE benefits below

INTRODUCTION



3M Fire Barrier CS-195+ Composite Sheet is a one-part composite board system comprised of four elements.

1. The heart of the system is an organic/inorganic, fire-resistive elastomeric sheet.
2. Bonded on one side to a layer of 30 gauge galvanized steel.
3. Reverse face is reinforced with hexagonal shaped steel-wire mesh
4. Wire mesh is veneered with industrial aluminium foil

APPLICATION

CS-195+ Composite Sheet is designed to offer a fire and smoke seal in larger penetrations through fire-rated walls and floors.

It is use for the following applications:

- ✓ Shielding cable trays and conduit
- ✓ HVAC ductwork
- ✓ Vital process equipment
- ✓ Protects against radiant heat, flame spread and smoke
- ✓ Ideal for new installations and retrofit applications
- ✓ Provides up to 4hr fire rating

When exposed to temperatures in excess of 121°C, the fire-resistive sheet begins to volumetrically expand and swells 8-10 times its original size, forming a high strength, hard char that retards heat transmission. This expansion process is called intumescence.

Under normal operating conditions, CS-195+ Composite Sheet is a good thermal conductor which allows unwanted heat build-up to escape from process and control equipment and also minimizes power cable de-rating.

MORE BENEFITS

- ✓ Light weight, with excellent strength to weight comparative benefits
- ✓ Seals large penetration in walls and around trays and cables
- ✓ Protects against radiant heat, flame spread and smoke
- ✓ Easily installed with common trade tools

PRODUCT FEATURES

- Intumesces to form a hard char that tightly seals penetrations against flame spread, smoke and toxic fumes
- Multiple applications – penetration firestop, heat shield and firebreak protection
- Easy to install using common trade tools
- Lightweight – easy to handle, cut and form to desired shape
- Easy to fasten – bolt punch or drill through. Use self-tapping screws or anchor bolts
- Thermally conductive – allows unwanted heat build-up to escape
- Non-flame supporting
- Cost effective, high performance versus installed cost
- No mixing or damming – is clean to install
- Versatile: can be cut to fit irregular shapes
- Re-enterable
- Low odour
- Tested in accordance with AS1530.4, EN1366 and ASTM E814 (UL Listed).

STORAGE

3M Fire Barrier CS-195+ Composite Sheet remains stable for an indefinite period of time. CS-195+ Composite Sheet should be stored in the original shipping container until used. The materials are non-impaired by freezing or storage at temperatures up to 86°C.



PHYSICAL SPECIFICATION

Sheet Sizes
406.4mm x 711.2mm
711.2mm x 1320.8mm
914.4mm x 609.6mm
914.4mm x 914.4mm
914.4mm x 1041mm

Component	Thickness
Galvanised sheet steel	0.399mm +/- 0.076mm 30 gauge
Fire-resistive sheet	7.24mm +/- 1.27mm
Hexagonal restraining wire	20 gauge
Aluminium foil	0.0508mm +/- 0.00508mm
Complete material	7.70mm +/- 1.37mm

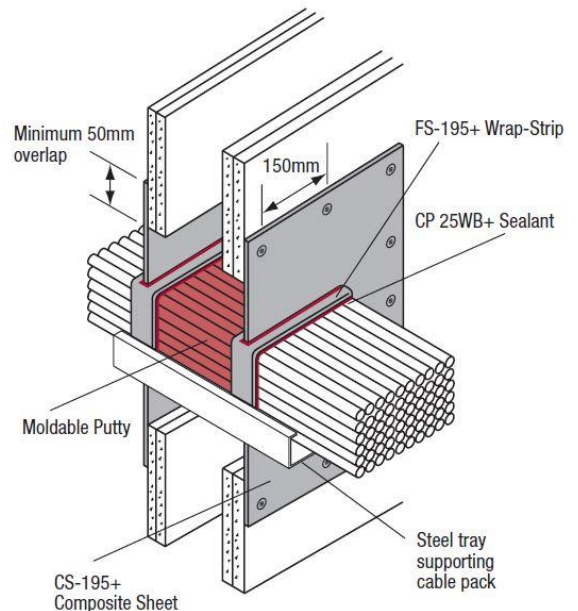
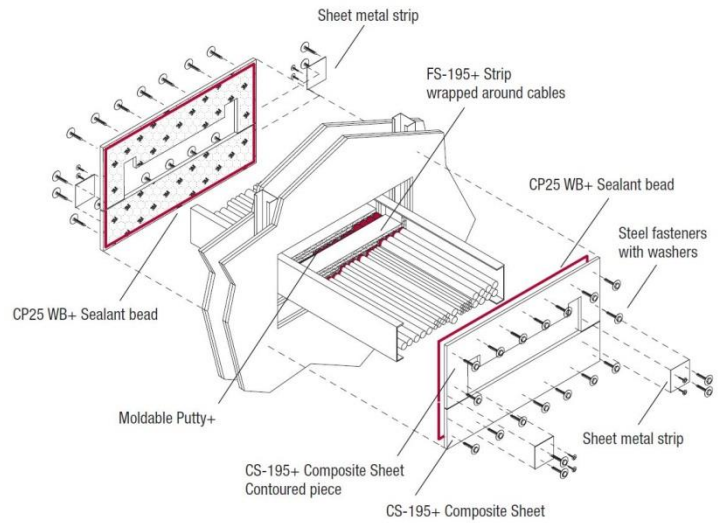
A. Physical and Electrical Properties as installed	
Normal weight	13.4 kg/m ²

Intumescent Activation Sequence	
Expansion begins	150°C
Significant expansion	177°C
Weight loss (TGA)	20% @ 350°C 31% @ 500°C 53.2% @ 1000°C
Expansion	8-10 Typical

Intumescent Sheet Properties (as part of composite)	
Domestic Strength (ASTD 149)	119 volts/mil average
Non-flame supporting hardness	45 to 65 Shore A
Tensile strength/elongation (ASTM D 142, Method A)	0.645 MPa (93.6 psi)/489%
Compression set	25% (maximum)
Surface burning characteristics ASTM E 84 (ANSI/UL 723)	Flame Speed 5 Smoke Development 50

INSTALLATION

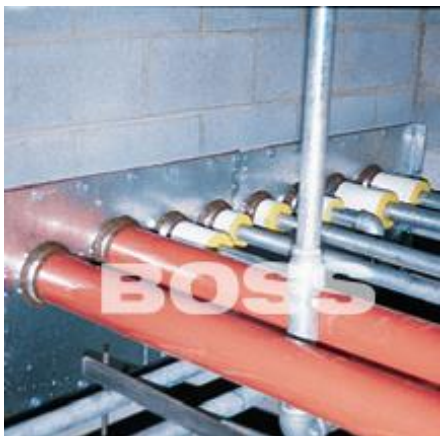
1. For drywall constructions, add metal framing to the top and bottom of the opening. If metal studs are used, the top (flat) surface should be facing toward and flush with the opening, and the channel of the stud should be facing into the wall cavity.
2. Wrap cables and metal pipes with a single layer of 3M Fire Barrier Moldable Putty+ Pad for the full depth of the seal.
3. Install 3M Fire Barrier FS-195+ Wrap/Strip around cables and metal pipes on both sides of the fire seal. Use steel wire to hold the FS-195+ Wrap/Strip in place.
4. Use cardboard, marking pencils and scissors to make templates of the exact size and shape of CS-195+ Composite Sheet pieces. Ensure that a 50mm overlap is allowed around the sides of the opening. The template will generally need to be made in at least two pieces. Plan the size of the first piece so only one piece requires contour cuts. The fewer pieces that need contour cuts, the quicker the installation will be.
5. Use a jigsaw to cut the CS-195+ Composite Sheet to the cardboard template.
6. Run a bead of 3M CP 25WB+ Sealant around the opening within 50mm of the edge.
7. Secure the CS-195+ Composite Sheet into place using 6mm steel fasteners with washers placed with 150mm spacing around the opening. Ensure that there is at least 50mm overlap around the opening.
8. Use 40mm wide steel sheet metal strips and sheet metal screws to cover the CS-195+ Composite Sheet seams.
9. Apply Fire Barrier CP 25WB+ Sealant around the cable tray and fill spaces between CS-195+ Composite Sheet and FS-195+ Wrap/Strip. Also, cover edges of the Wrap/Strip and fill any spaces that smoke would likely penetrate.



Performance Specifications for Installers

Australian Standard FRLs: 3M CS-195 Composite Sheet

Building Element	Blank (Unpenetrated) Seal	PVC Insulated Cables, Cable trays and Cable bundles	Copper or Steel Pipes Small* 15mm diameter or smaller 0.9mm wall thickness or thicker	Steel Pipes Small* 34mm diameter or smaller 3.5mm wall thickness or thicker
Floor: Concrete slab. <i>Minimum 120mm thickness</i>	-/240/120	-/180/30	-/240/-	-/240/-
Wall: Plasterboard Dry Wall <i>Minimum 116mm thickness</i>	-/120/30	-/120/30	-/120/-	-/120/-
Wall: Solid masonry, hollow masonry or concrete construction. <i>Minimum 116mm thickness</i>	-/240/90	-/180/30	-/180/-	-/180/-



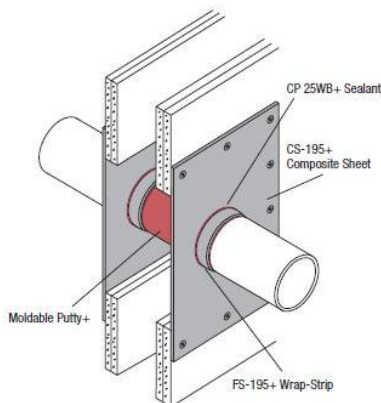
In order to achieve the above FRLs you must ensure that the CS-195+ Composite Sheet is installed as per the Installation Techniques and the building element you are installing into has an FRL performance equal to or better than that of the CS-195+ system. The Installation Techniques can be found on the final page of this document.

What does FRL mean?

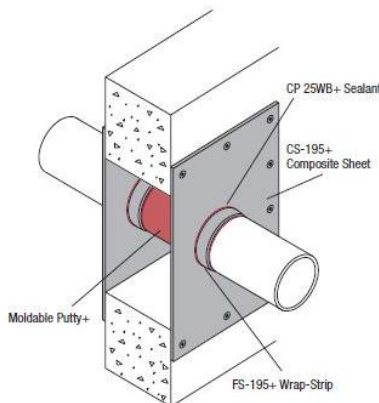
FRL stands for 'Fire Resistance Level'. For example, an FRL of '-/240/120' indicates:

- Structural Adequacy. The first dash '-' indicates that CS-195+ is non load bearing
- Integrity. The middle number '240' indicates for how many minutes the CS-195+ system can resist the passage of flames and hot gasses
- Insulation. The last number '120' indicates how many minutes it takes the unexposed face to heat up by more than 180°C.

Metal Pipes*

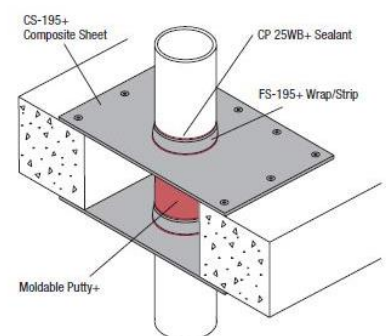


Dry Wall 116mm
Copper: 15mm dia, 0.91mm wall: FRL: -/120/-
Steel: 34mm dia, 3.5mm wall: FRL: -/120/-



Solid Masonry, Hollow Masonry or Concrete Wall 120mm
Copper: 15mm dia, 0.91mm wall: FRL: -/180/-
Steel: 34mm dia, 3.5mm wall: FRL: -/180/-

* With or without up to 19mm Armaflex insulation

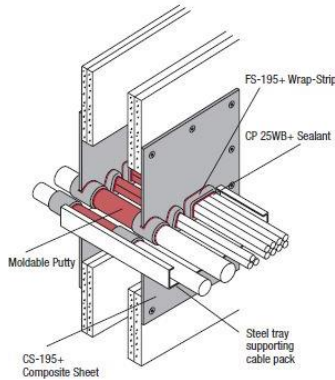


Concrete Floor 120mm
Copper: 15mm dia, 0.91mm wall: FRL: -/240/-
Steel: 34mm dia, 3.5mm wall: FRL: -/240/-

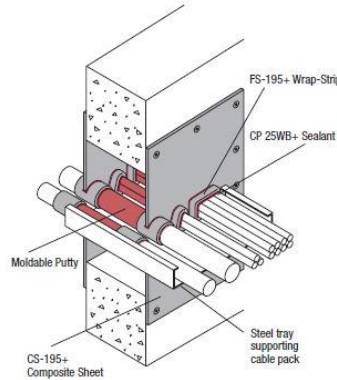
Performance Specifications for Engineers and Specifiers

3M Fire Barrier CS-195+ Composite Sheet has been tested in accordance with AS1530.4-2005 and assessed in accordance with AS4072.1-2005 under BWA Report No: 22695. The following illustrations provide a summary of the test results for D1 and D2 cable configurations, metal pipe penetrations and blank unpenetrated seals with CS-195+ installed as per the Installation Techniques. Specifications for standard D1 and D2 cable configurations can be found in AS1530.4-2005 Appendix D.

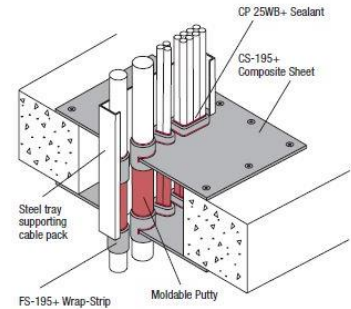
D1 Cable Pack – Power Transmission Cables



Dry Wall 116mm – FRL: -/120/30

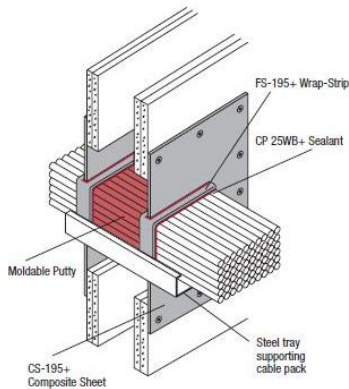


Solid Masonry, Hollow Masonry or
Concrete Wall 116mm – FRL: -/180/30

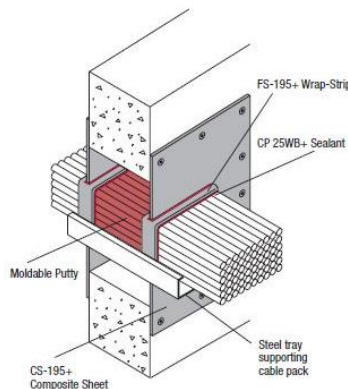


Concrete Floor 120mm – FRL: -/180/30

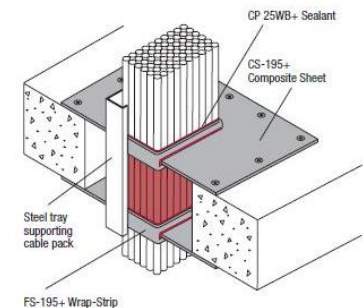
D2 Cable Pack – Telecom Cables



Dry Wall 116mm – FRL: -/120/30

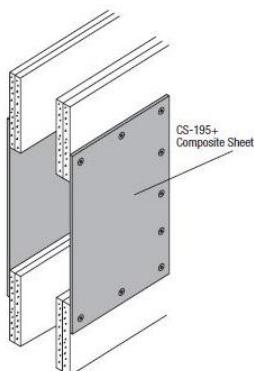


Solid Masonry, Hollow Masonry or
Concrete Wall 116mm – FRL: -/180/90

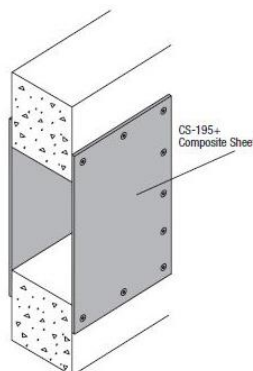


Concrete Floor 120mm – FRL: -/180/90

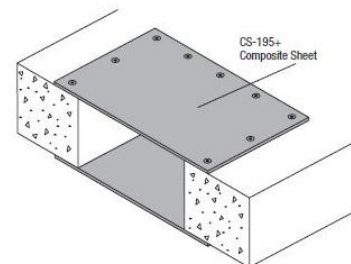
Blank Openings (unpenetrated)



Dry Wall 116mm – FRL: -/120/30



Solid Masonry, Hollow Masonry or
Concrete Wall 116mm – FRL: -/240/90



Concrete Floor 120mm – FRL: -/240/120

SIZES AVAILABLE

Product Code	Packing Sizes	Unit
CS - 406711	Boxed 406.4mm x 711mm	1
CS - 7111321	Boxed 711mm x 1321mm	1
CS - 914610	Boxed 914.4mm x 610mm	1
CS - 914914	Boxed 914.4mm x 914.4mm	1
CS - 9141641	Boxed 914.4mm x 1041.4mm	1

HEALTH AND SAFETY

To learn more about the safe handling of CS-195+ Composite Sheet FR Board, see the Material Safety Data Sheet available at www.bossfire.com.au.

LIMITATION

BOSS Fire & Safety Pty Ltd has provided the above technical information in good faith and to the best of its knowledge. This information was deemed to be correct at the time of publication. Should any data come to BOSS Fire & Safety's attention relating to the fire resistance or performance of the product described, BOSS Fire & Safety reserve the right to amend this report.

BOSS Fire & Safety strive to constantly improve and develop products so this information may change without notice.

FURTHER TECHNICAL INFORMATION

For additional technical information on the performance of CS-195+ Composite Sheet FR Board or other BOSS products please contact our Technical Services team on:

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